

WHAT IS CLAIMED IS:

1. A semiconductor device, comprising:  
a substrate provided with terminals for connecting conductive wires;  
a first semiconductor chip mounted face-up on the substrate and electrically connected to the terminals provided on the substrate by the conductive wires; and

a second semiconductor chip having a projecting part formed on a rear surface thereof and attached onto the first semiconductor chip via the projecting part.

2. The semiconductor device according to claim 1, further comprising insulating resin that attaches the second semiconductor chip onto the first semiconductor chip via the projecting part.

3. The semiconductor device according to claim 2, wherein filler is mixed in with the insulating resin.

4. The semiconductor device according to claim 2, wherein the insulating resin fills at least part of a region of a stepped part in which the projecting part is provided.

5. A semiconductor device, comprising:  
a substrate provided with terminals for connecting conductive wires;  
a first semiconductor chip mounted face-up on the substrate;  
first electrode pads provided on the first semiconductor chip;  
first conductive wires electrically connecting the first electrode pads to the terminals provided on the substrate;

a second semiconductor chip having a projecting part formed on a rear surface thereof;

second electrode pads provided on the second semiconductor chip;

insulating resin enclosing the first conductive wires on the first semiconductor chip and attaching the second semiconductor chip onto the first semiconductor chip via the projecting part;

second conductive wires electrically connecting the second electrode pads and the terminals provided on the substrate; and

sealing resin sealing the first semiconductor chip to which the first conductive wires are connected and the second semiconductor chip to which the second conductive wires are connected.

6. A semiconductor device, comprising:

a substrate provided with terminals for connecting conductive wires;

a first semiconductor chip mounted face-up on the substrate;

first electrode pads provided on the first semiconductor chip;

first conductive wires electrically connecting the first electrode pads to the terminals provided on the substrate;

a second semiconductor chip having a projecting part formed on a rear surface thereof;

second electrode pads provided on the second semiconductor chip;

insulating resin provided between the first semiconductor chip and the second semiconductor chip so as to be present at least below the second electrode pads and attaching the second semiconductor chip onto the first semiconductor chip via the projecting part; and

second conductive wires electrically connecting the second electrode pads to the terminals provided on the substrate.

7. The semiconductor device according to claim 1, further comprising an insulating layer formed on an entire rear surface of the second semiconductor chip including the projecting part.

8. The semiconductor device according to claim 1, wherein at least part of a region of the projecting part is formed so as to widen towards a surface on which the projecting part is formed.

9. The semiconductor device according to claim 1, wherein a size of the second semiconductor chip is larger than a size of the first semiconductor chip.

10. A semiconductor device comprising:  
a substrate provided with terminals for connecting conductive wires;  
a first semiconductor chip mounted as a flip-chip on the substrate;  
a second semiconductor chip mounted face-up on the first semiconductor chip via an adhesive layer;

first conductive wires electrically connecting the terminals provided on the substrate and the second semiconductor chip;

a third semiconductor chip having a projecting part formed on a rear surface thereof and attached onto the second semiconductor chip via the projecting part; and

second conductive wires electrically connecting the terminals provided on the substrate and the third semiconductor chip.

11. An electronic device comprising:  
a substrate provided with terminals for connecting conductive wires;  
a first electronic component mounted face-up on the substrate and

electrically connected to the terminals provided on the substrate by the conductive wires; and

a second electronic component having a projecting part formed on a rear surface thereof and attached onto the first electronic component via the projecting part.

12. An electronic appliance comprising:

a substrate provided with terminals for connecting conductive wires;

a first semiconductor chip mounted face-up on the substrate and electrically connected to the terminals provided on the substrate by the conductive wires;

a second semiconductor chip having a projecting part formed on a rear surface thereof and attached onto the first semiconductor chip via the projecting part; and

an electronic component electrically connected to the first semiconductor chip and the second semiconductor chip via the substrate.

13. A method of manufacturing a semiconductor device, comprising:

mounting a first semiconductor chip on a substrate provided with terminals for connecting conductive wires;

connecting the first semiconductor chip mounted on the substrate and the terminals provided on the substrate with conductive wires; and

attaching a second semiconductor chip, having a projecting part formed on a rear surface thereof, onto the first semiconductor chip.

14. A method of manufacturing a semiconductor device, comprising:

mounting a first semiconductor chip on a substrate provided with terminals for connecting conductive wires;

connecting a first semiconductor chip mounted on the substrate and the terminals provided on the substrate with conductive wires;

disposing insulating resin on the first semiconductor chip; and

attaching a second semiconductor chip onto the first semiconductor chip by pressing a projecting part formed on a rear surface of the second semiconductor chip onto the insulating resin.

15. The method of manufacturing a semiconductor chip according to claim 13, further comprising:

half cutting a rear surface of a wafer, a surface of which has been divided by scribe lines, to form trenches that are disposed opposite the scribe lines; and

cutting the trenches along the scribe lines to form the second semiconductor chip that respectively has projecting parts formed on the rear surface thereof.

16. The method of manufacturing a semiconductor device according to claim 15, wherein the rear surface is half cut by one of dicing with a blade with a rounded tip, isotropic etching, and laser machining.

17. The method of manufacturing a semiconductor device according to claim 15, further comprising forming an insulating film on a rear surface of the wafer in which the trenches have been formed.

18. The semiconductor device according to claim 3, wherein the insulating resin fills at least part of a region of a stepped part in which the projecting part is provided.

19. The semiconductor device according to claim 2, further comprising an insulating layer formed on an entire rear surface of the second semiconductor chip including the projecting part.

20. The method of manufacturing a semiconductor chip according to claim 14, further comprising:

half cutting a rear surface of a wafer, a surface of which has been divided by scribe lines, to form trenches that are disposed opposite the scribe lines; and

cutting the trenches along the scribe lines to form the second semiconductor chip that respectively has projecting parts formed on the rear surface thereof.